PROC. ENTOMOL. SOC. WASH.
99(2), 1997, pp. 257–266

REDESCRIPTION OF THE SUBGENUS *HYGIA* (*EUCOLPURA*) BREDDIN (HEMIPTERA: COREIDAE: COLPURINI), WITH THE DESCRIPTION OF TWO NEW SPECIES, AND A KEY TO THE KNOWN SPECIES

HARRY BRAILOVSKY AND ERNESTO BARRERA

Departamento de Zoologia, Instituto de Biología UNAM, Apdo Postal No. 701-53, México, 04510 D.F., México.

Abstract.—The subgenus *Hygia* (*Eucolpura*) Breddin is redescribed and two new species ***H.* (*E.*) *heveli*** and ***H.* (*E.*) *melas*** from Borneo are described; *H.* (*E.*) *speculatrix* (Breddin) is made a junior synonym of *H.* (*E.*) *lugubris* (Walker); habitus view illustrations and drawings of the male and female genitalia are provided; a key to the known species is included.

Key Words: Insecta, Heteroptera, Coreidae, Colpurini, *Hygia* (*Eucolpura*), new species, Borneo

The genus *Hygia* Uhler (1861) contains ten subgenera, *Australocolpura* Brailovsky, *Caracolpura* Breddin, *Colpura* Bergroth, *Eucolpura* Breddin, *Hygia* Uhler, *Microcolpura* Breddin, *Pterocolpura* Blöte, *Sphinctocolpura* Breddin, *Stenocolpura* Breddin and *Trichocolpura* Breddin, and approximately 79 species, widely distributed in the Oriental Region throughout Japan, China, Taiwan, India, Burma, Assam, Korea, Cambodia, Malacca, Sarawak (Borneo), West Malaysia, Sumatra, Singapore, Java, Philippines, Sulawesi, Mentawei, New Guinea and Australia (Brailovsky 1993)

The present paper adds two new species in *Hygia* (*Eucolpura*) whose members are distinguished by having the genae laterally armed, the pronotum nearly campanuliform, and the humeral angles angulately or nearly prominent.

The following abbreviations are used for the institutions cited in this paper: BMNH (The Natural History Museum, London, England); BPBM (Bernice P. Bishop Museum, Honolulu, Hawaii); DEI (Deutsches Entomologisches Institut, Germany); IRNB (Institut Royal des Sciences Naturelles, Bruxelles, Belgique); NSMT (National Science Museum, Tokyo, Japan); UNAM (Colección Entomológica, Instituto de Biología, Universidad Nacional Autónoma de México); USNM (National Museum of Natural History, Smithsonian Institution, Washington D.C.); ZIL (Zoological Institute, Leningrad); ZMUA (Zoologisches Museum, Universiteit van Amsterdam, Netherlands).

All measurements are given in millimeters.

Hygia (*Eucolpura*) Breddin

Colpura (*Eucolpura*) Breddin, 1900b: 202.
Hygia (*Eucolpura*) Blöte, 1936: 35, 38.

Diagnosis.—The genus *Hygia* Uhler includes ten subgenera (Brailovsky, 1993), two of which, *H.* (*Colpura*) Bergroth and *H.* (*Eucolpura*) Breddin, have the genae projecting into acute or obtuse teeth. In the other subgenera, the genae are, simple without teeth or lateral projections.

Hygia (*Colpura*) includes more robust

species, with the sharp teeth of genae clearly projecting laterally and visible from above; the pronotum is trapezoidal with the anterolateral borders straight or nearly so, and the humeral angles are very broadly rounded. In *H.* (*Eucolpura*), the teeth of genae are obtuse, the pronotum is more or less campanuliform, and the humeral angles are angulate and prominent.

Redescription.—*Head:* Wider than long, pentagonal, flat dorsally; tylus unarmed, globose apically, extending anteriorly to jugae, slightly raised in lateral view; jugae unarmed, thickened, shorter than tylus; genae with obtuse teeth directed forward; antenniferous tubercle unarmed; side of head in front of eye unarmed, subparallel; antennal segment I moderately robust, thickest, slightly curved outward and longer than head; segments II and III cylindrical, slender; segment IV fusiform, slender; segment II the longest, segment IV shortest and III subequal to I; antennal segment IV longer than length of head; ocelli well developed, strongly elevated; preocellar pit deep; eyes large, spherical, sessile; postocular tubercle protuberant; buccula rounded, short, not projecting beyond antenniferous tubercle, with sharp spiny anterior projection; rostrum reaching anterior third of abdominal sternite III or anterior third of V; mandibular plate unarmed.

Thorax: Pronotum wider than long, campanuliform, slightly declivent; collar wide; frontal angles rounded or produced forward as small lobe or conical teeth; humeral angles rounded and either not or angulately exposed, prominent and elevated; anterolateral borders with anterior half convex and posterior half oblique, straight; posterolateral borders and posterior border nearly straight; callar region slightly convex, well developed with median longitudinal depression. Anterior lobe of metathoracic peritreme reniform, globose, posterior lobe sharp, small.

Legs: Femora densely granulate, with two rows of spines along ventral surface; tibiae with shallow sulcus, sometimes difficult to see.

Scutellum: Triangular, flat, longer than wide; apex barely globose, subacute or nearly flat and acute.

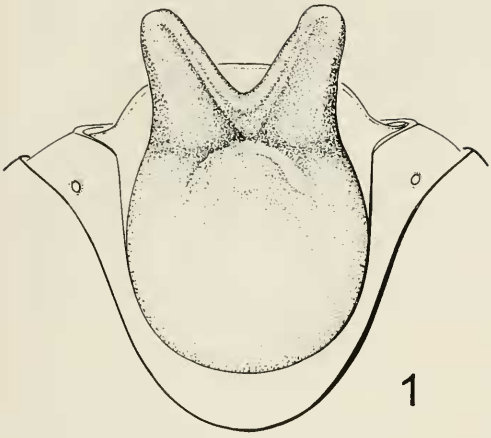
Hemelytra: Macropterous, reaching almost the apex of the last abdominal segment; claval suture evident; apical border oblique, straight, with short apical angle, not reaching middle one third of hemelytral membrane.

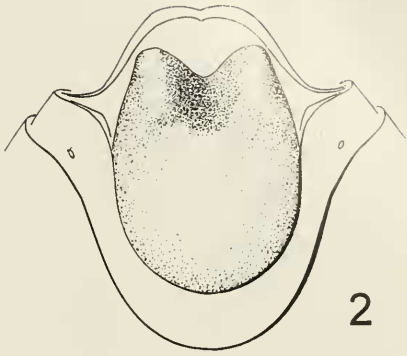
Abdomen: Connexival segments higher than abdominal terga: superior border of connexiva serrate; posterior angle of each connexival segment complete, except the VI moderately exposed; abdominal sterna with medial furrow extending to the anterior margin of sternite V.

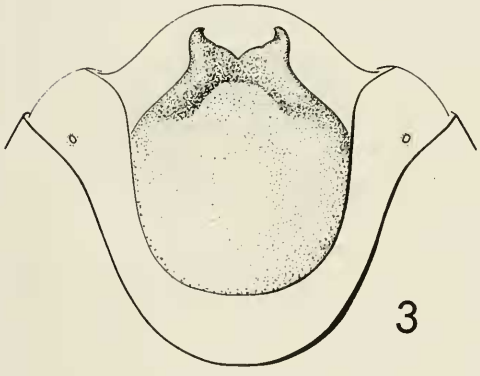
Integument: Body surface rather dull, with mesosternum lateraly shining. Head ventrally, pronotum, scutellum, clavus, corium, thorax, and abdomen densely covered with circular greyish-white farinose punctures, with short decumbent silvery bristle-like setae, intermixed with few long erect hairs located on the abdominal sterna. Head dorsally and callar region scarcely punctate to smooth; male genital capsule and female genital plates densely punctate, with long erect or semierect setae. Pubescence of antennae and femora short, mainly suberect, on tibiae and tarsi longer and rather dense.

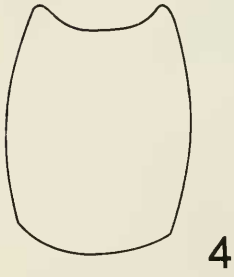
Male genitalia: Genital capsule: Posteroventral edge subtruncated, or shallowly emarginated with lateral lobes short and wider (Figs. 2, 6), or short and narrow (Fig. 4), or projected on a medium plate with lateral lobes subacute (Fig. 3) or deeply emarginated, with lateral lobes elongated (Fig. 5) or strongly bilobed with lateral lobes remarkably wider (Fig. 1).

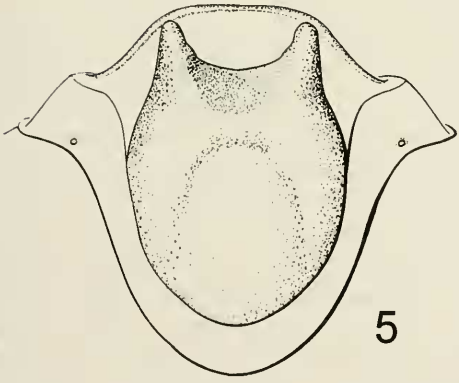
Female genitalia: Abdominal sternite VII with plica and fissura; plica triangular, wide, reaching anterior third (Fig. 10), or almost medial third of sternite VII (Figs. 7–9); gonocoxae I squarish, enlarged dorsoventrally, in lateral view with external face entire, straight, and open ventrally; paratergite VIII quadrate, with spiracle visible;

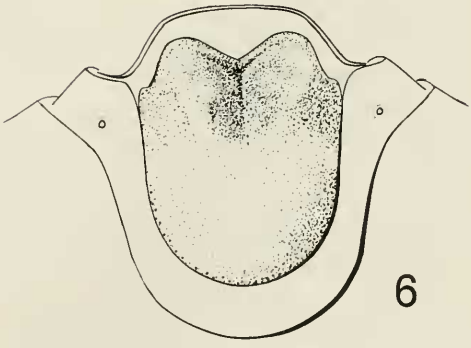




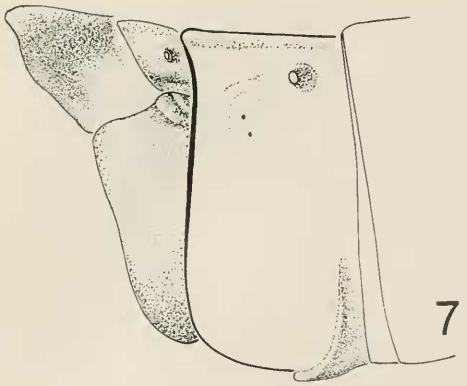


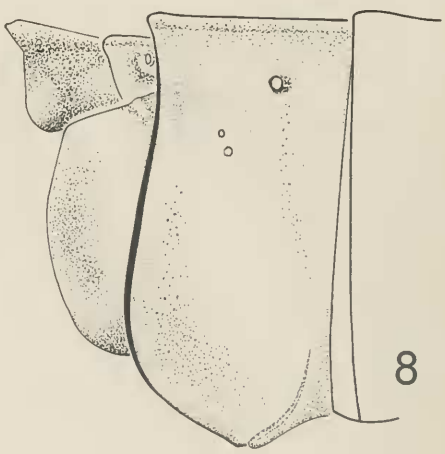


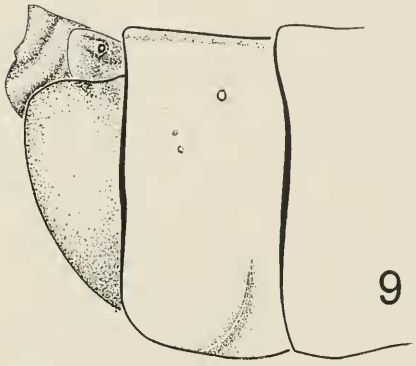


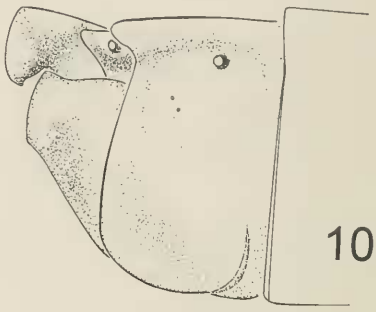


Figs. 1–6. *Hygia* (*Eucolpura*), male genital capsule in caudal view. 1, *H.* (*E.*) *melas.* 2, *H.* (*E*). *scrutatrix.* 3, *H.* (*E*). *lugubris.* 4, *H.* (*E*). *moesta.* 5, *H.* (*E*). *heveli.* 6, *H.* (*E*). *scrutatrix.*









Figs. 7–10. *Hygia* (*Eucolpura*), female genital capsule in lateral view. 7, *H.* (*E*). *melas*. 8, *H.* (*E*). *heveli*. 9, *H.* (*E*). *scrutatrix*. 10, *H.* (*E*). *lugubris*.

paratergite IX square, medium size, extending beyond the external face of gonocoxae I and with the external margin of various shapes (Figs. 7–10).

Type species.—*Lybas lugubris* Walker, 1871.

Historical notes.—Walker (1871) described *Lybas lugubris* from three different localities Singapore, Sarawak and New Guinea and *Lybas moestus* from Java. The third known species, *Colpura speculatrix* (Breddin 1900a), was described from Borneo and Sumatra. Breddin (1900b) revised the Tribe Colpurini (= Pachycephalini, = Lybantini), included in the genus *Colpura* Bergroth (1894), the new subgenus *Eucolpura,* described the fourth species *C. scrutatrix* from Borneo, and transfered the last three species into *Eucolpura.* Subsequently, Breddin (1906) described *C.* (*E.*) *dolens* from Sumatra and *C.* (*E.*) *severa* from Java and synonymized *C.* (*E.*) *speculatrix* under *C.* (*E.*) *lugubris* and *H.* (*E.*) *severa* under *H.* (*E.*) *moesta.* Blöte (1936) synonymized the genus *Colpura* under *Hygia* Uhler (1861), gave new records for *H.* (*E.*) *lugubris, H.* (*E.*) *moesta, H.* (*E.*) *scrutatrix,* and resurrected *H.* (*E.*) *speculatrix* to species status.

Examination of type material for *H.* (*E.*) *lugubris* (BMNH), *H.* (*E.*) *moesta* (BMNH), *H.* (*E.*) *scrutatrix* (DEI), and *H.* (*E.*) *speculatrix* (DEI), study of undetermined specimens, as well as the original de-

scription and drawings of the male genital capsule of *H.* (*E.*) *dolens,* resulted in the recognition of two new species from Borneo and confirmation that *H.* (*E.*) *speculatrix* is a junior synonym of *H.* (*E.*) *lugubris.* On the general pattern of distribution for the subgenus, we believe the New Guinea locality for *H.* (*E.*) *lugubris* is erroneous.

Hygia (*Eucolpura*) *melas* Brailovsky and Barrera, new species

(Figs. 1, 7, 11)

Description.—Measurements: male first, then female: Head length 2.08, 2.32; width across eyes 2.26, 2.36; interocular space 1.12, 1.20; interocellar space 0.52, 0.56; preocular distance 1.36, 1.48; length antennal segments: I, 3.36, 3.40; II, 4.28, 4.36; III, 3.36, 3.48; IV, 2.36, 2.44. Pronotum: Total length 3.32, 3.70; width across frontal angles 1.80, 2.20; width across humeral angles 5.08, 5.76. Scutellar length 2.28, 2.76; width 2.12, 2.56. Total body length 15.36, 18.05.

Male.—Coloration: Head dark red, with dorsal face of postocular tubercle, and anterior third of buccula yellow, with following areas with bright orange reflections: tylus, antenniferous tubercles, and posterior third of buccula; antennal segments I to III bright orange (base of I yellow) and IV pale yellow with basal join and apex pale orange brown; rostral segments I to III pale brown, and IV pale orange yellow with apex pale brown; pronotum pale brown red with callus, and humeral angles dark red to black; scutellum, clavus, corium, connexival segments, thorax, and abdominal sterna pale brown red with following areas yellow: apex of scutellum, clearly discoidal spot located on inner third of apical margin of corium, posterior third of connexival segments III to VII, posterior third of pleural sterna III to VII, and posterior border or posterior margin of abdominal sterna V to VII; anterior and posterior lobe of metathoracic peritreme creamy yellow; hemelytral membrane dirty yellow, with veins and large distal spot brown, with basal angle black; dorsal abdominal segments I to III pale orange yellow, and IV to VII dark red with orange reflections; genital capsule dark red; coxae brown red with pale orange reflections, and with apical third pale yellow; trochanters pale yellow with small bright orange spot located on inner third of apical margin; femora and tibiae with three narrow longitudinal stripes dark brown red, and three narrow stripes pale yellow; tarsi bright orange yellow.

Male.—Structure: Rostrum reaching anterior to middle third of abdominal sternite IV; frontal angles rounded; humeral angles angulately exposed, and moderately prominent. Genital capsule: Posteroventral border strongly bilobed, with lateral lobes remarkably wider (Fig. 1).

Female.—Coloration: Similar to male. Connexival segments VIII and IX, abdominal segments VIII and IX, and genital plates pale to dark brown red, with following areas yellow: posterior third of connexival segment VIII, posterior angle of paratergite VIII, and inner angle of gonocoxae I. Genital plates. Paratergite IX square, medium size, extending beyond external face of gonocoxae I, and with external margin entire and not folded (Fig. 7).

Variation.—1, rostral segment IV pale orange; 2, hemelytral membrane yellow with veins brown red, and basal angle black; 3, dorsal abdominal segments I to V or VI bright orange yellow, with punctures darker; 4, scutellum and thorax dark red; 5, femora and tibiae sometimes with dark brown red and yellow stripes difficult to segregate but always present; 6, posterior lobe of metathoracic peritreme dirty yellow.

Type material.—Holotype: ♂, Malaysia, Borneo, Sandakan, Baker (without data) (USNM). Paratypes: 2 ♂, 2 ♀, same data as holotype (USNM, UNAM); 1 ♀, N. Borneo, Kuching, March 1900, Dyak (BMNH); 1 ♀, Sarawak, Baram River, Gunong-Tamabo, 7 November 1920, J.C. Moulton (UNAM); 1 ♂, O. Borneo, Midden, 18 February 1925, H.C. Siebers (ZIL); 1 ♀, Borneo, M.O. Borneo Exp., Long Petak

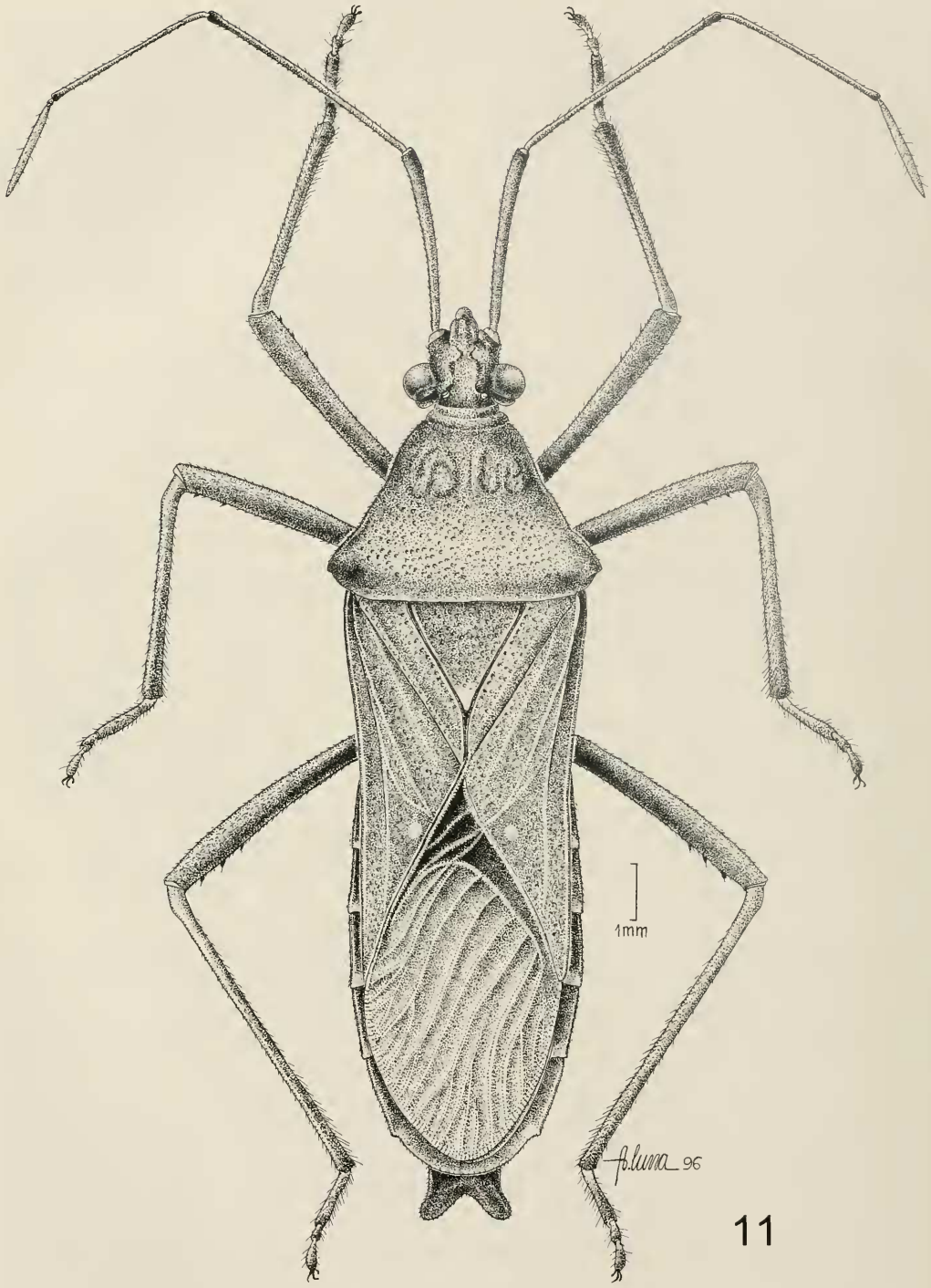


Fig. 11. Dorsal view of *Hygia* (*Eucolpura*) *melas,* male.

(450 mts.), 24 August to 9 September 1925, H.C. Siebers (ZIL); 1 ♂, Sarawak, Ulu Akar, November 1914, P. de F. (UNAM); 1 ♂, Sarawak, Matang, December 1898 (BMNH); 1 ♂, 2 ♀, Sarawak, Mt. Matang, 21 December 1913, January to February 1914 (BMNH); 2 ♀, Malayan Peninsula, Selangor (2000 mts.), C.B. Klon (without data) (BMNH); 1 ♀, Malayan Peninsula, Bukit Kutu, (3457 ft), 18 September 1930, N.C.E. Miller (UNAM); 1 ♂, Malayan Peninsula, SE. Pahang Rompin Mining, 32–37 km., from Petoh, 24 January 1961, T.C. Maa (BPBM); 1 ♂, Malayan Peninsula, Selangor, Gombak Valley, 20 October 1921, H.M. Pendlebury (UNAM); 1 ♂, Malayan Peninsula, Pahang (without data) (IRNB).

Notes.—*Hygia* (*E.*) *melas* is easily distinguished by the strongly bilobed shape of the posteroventral border of the male genital capsule, which is lateraly delimited by two remarkably pronounced arms (Fig. 1) and by having the external margin of the paratergite IX entire and not folded (Fig. 7). An additional condition is the peculiar coloration pattern of the femora, with three dark brown, narrow, longitudinal stripes and three pale yellow stripes.

Etymology.—From the Greek melas, meaning black, and refering to the black coloration of the humeral angles.

Distribution.—Known from the type localities.

Hygia (*Eucolpura*) *heveli* Brailovsky and Barrera, new species

(Figs. 5, 8, 12)

Description.—Measurements: male first, then female: Head length 2.24, 2.48; width across eyes 2.32, 2.52; interocular space 1.16, 1.32; interocellar space 0.52, 0.59; preocular distance 1.38, 1.57; length antennal segments: I, 3.92, 4.04; II, 5.04, 5.04; III, 4.00, 3.88; IV, 2.72, 2.72. Pronotum: Total length 3.04, 3.56; width across frontal angles 1.72, 2.23; width across humeral angles 4.52, 5.50. Scutellar length 2.28, 2.60; width 1.76, 2.28. Total body length 15.69, 18.28.

Male.—Coloration: Head dark red with dorsal face of postocular tubercle, and anterior third of buccula yellow, with following areas with bright orange reflections: apex of tylus, antenniferous tubercle, and buccula; antennal segments I to III bright orange, and IV pale yellow with basal join bright orange; rostral segments I to III bright chestnut orange, and IV bright orange, with apical third darker; pronotum with collar, anterior lobe, and humeral angles black, and posterior lobe reddish brown; scutellum dark reddish brown, with apex pale yellow; clavus and corium pale reddish brown with yellow discoidal spot located on the inner third of apical margin of corium; hemelytral membrane dirty yellow, with basal angle black, and apical third with large brown blotch; connexival segments pale reddish brown, with posterior third yellow; abdominal segments I to V pale orange red, and VI to VII dark red; thorax dark reddish brown, with acetabulae bright chestnut orange; anterior and posterior lobe of metathoracic peritreme creamy yellow; abdominal sterna dark reddish brown with following areas yellow: posterior third of pleural sterna III to VII, and posterior border of abdominal sterna V to VII; genital capsule dark to pale reddish brown, with lateral lobes bright orange; coxae and trochanter bright yellow; femora with two longitudinal stripes yellow and two bright orange; tibiae and tarsi bright orange.

Male.—Structure: Rostrum reaching middle third of abdominal sternite IV or anterior third of V; frontal angles rounded; humeral angles angulately exposed, and moderately prominent. Genital capsule: Posteroventral border deeply emarginated, with lateral lobes elongated (Fig. 5).

Female.—Coloration: Similar to male. Connexival segments VIII and IX reddish brown with posterior third yellow; abdominal segments VIII and IX reddish brown; genital plates reddish brown with internal angle of gonocoxae I yellow. Genital plates. Paratergite IX square, conspicuously devel-

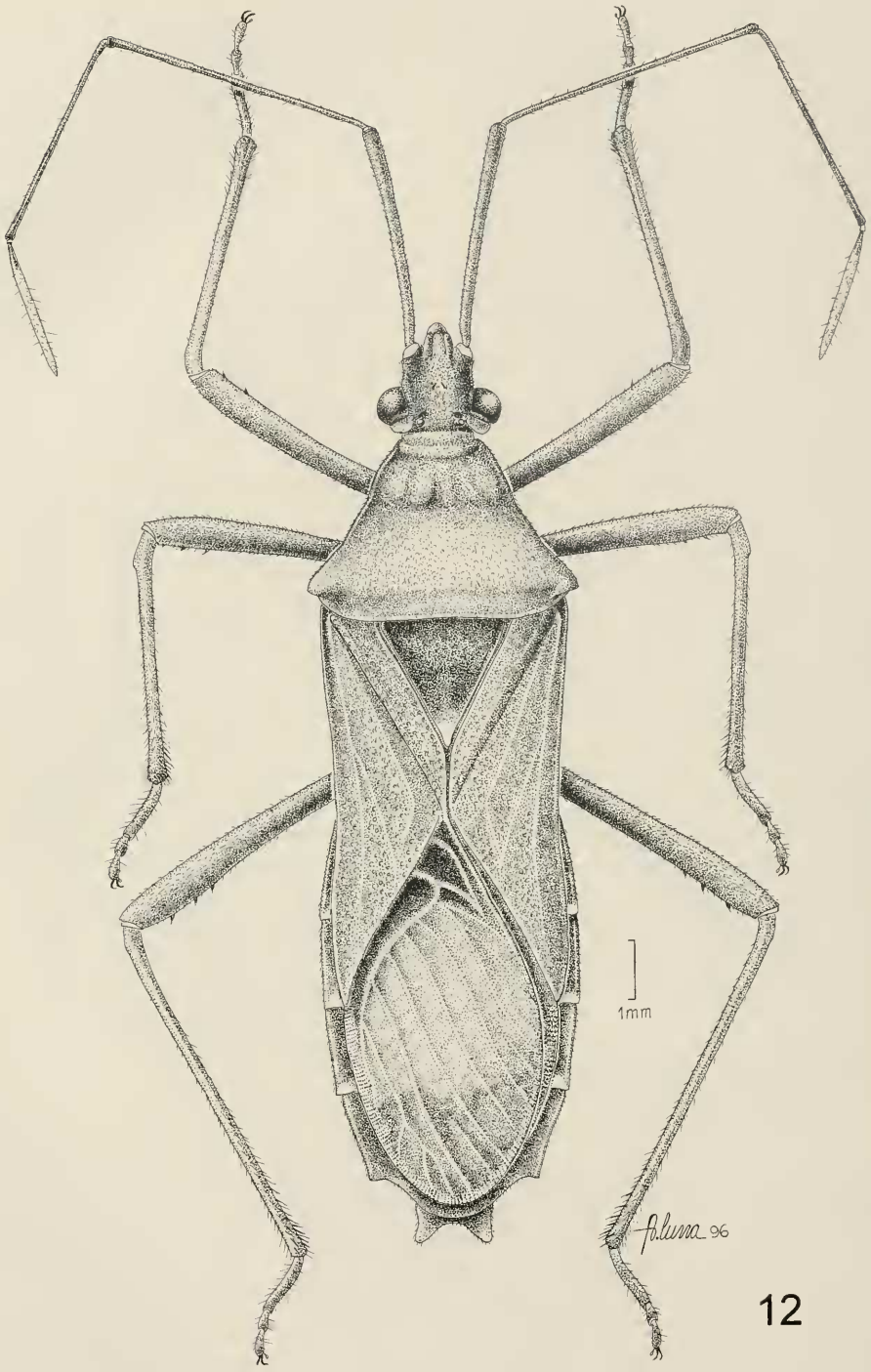


Fig. 12. Dorsal view of *Hygia* (*Eucolpura*) *heveli*, male.

oped, extending beyond the external face of gonocoxae I, and with external margin slightly folded and curved (Fig. 8).

Variation.—The type material exhibits some color variation: 1, postocular tubercle entirely yellow; 2, space between eyes and ocelli yellow; 3, hemelytral membrane pale yellow with basal angle black; 4, femora orange yellow with reddish brown granules.

Type material.—Holotype: ♂, Malaysia, Sabah, 1 km., South of Kundasang, (1530 mts.), 28 August 1983, G.F. Hevel and W.E. Steiner (USNM). Paratypes: 2 ♀, same data as holotype (UNAM, USNM); 2 ♀, B.N. Borneo, Mt. Kinabalu, Kenokok (3300 ft), 23–25 April 1929 (BMNH); 2 ♀, B.N. Borneo, near Kinabalu, Tenompok (4700 ft), 18 May 1929 (BMNH, UNAM); 1 ♀, Borneo, Midden. 16 October 1925, H.C. Siebers (ZMUA).

Notes.—*Hygia* (*E.*) *heveli,* is similar to *H.* (*E.*) *lugubris* (Walker) and to *H.* (*E.*) *melas* Brailovsky and Barrera, in having the frontal angles of the pronotum rounded and not produced forward as conical teeth, and by the rostrum reaching anterior or middle third of abdominal sternite IV (occasionally anterior third of V). *Hygia* (*E.*) *heveli* is recognized by the shape of the posteroventral border of the male genital capsule (Fig. 5), for having paratergite IX conspicuously developed, with the external margin slightly folded and curved (Fig. 8), and by the length of the antennal segment II longer than 5.00mm. The length of segment II in other taxa is shorter than 4.50mm, and paratergite IX has the external margin conspicuously folded downward (*H.* (*E.*) *lugubris*) (Fig. 10) or has the external margin entire and not folded (*H.* (*E.*) *melas*) (Fig. 7).

Etymology.—Named for G. F. Hevel (USNM).

Distribution.—Known from the type localities.

Key to the Known Species of *Hygia Eucolpura*

1. Hemelytral membrane with basal angle pale yellow brown . . . . . *moesta* (Walker)
– Hemelytral membrane with basal angle black. 2
2. Posteroventral border of the male genital capsule simple, transversely straight with lateral angles nearly rounded . . . . . *dolens* (Breddin)
– Posteroventral border of the male genital capsule not transversely straight, with rounded lateral angles (Figs. 1–3). 3
3. Frontal angles of the pronotum produced forward as small conical teeth. . . *scrutatrix* (Breddin)
– Frontal angles of the pronotum rounded. 4
4. Posteroventral border of the male genital capsule lateraly delimited by two remarkably pronounced arms (Fig. 1); paratergite IX with the external margin entire and not folded (Fig. 7) . . . . . *melas* Brailovsky and Barrera new species
– Posteroventral border of male genital capsule delimited by much shorter arms; paratergite IX folded. 5
5. Posteroventral border of the male genital capsule deeply emarginated, with lateral lobes elongated (Fig. 5); paratergite IX with the external margin slightly folded and curved (Fig. 8) . . . *heveli* Brailovsky and Barrera new species
– Posteroventral border of the male genital capsule with a short plate, having a sharp inwardly curving spine on each side (Fig. 3); paratergite IX with the external margin conspicuously folded downward (Fig. 10) . . . *lugubris* (Walker)

Acknowledgments

The authors express their gratitude to the following colleagues and institutions for the loan of specimens and other assistance relevant to this study: Janet Margerison-Knight (BMNH); Gordon Nishida (BPBM); Eckhard K. Groll (DEI); Jan van Stalle (IRNB); Masaaki Tomokuni (NSMT); Thomas J. Henry and G.F. Hevel (USNM); I.M. Kerzhner (ZIL); and W. Hogenes (ZMUA). Special thanks for the two anonymous reviewers.

Literature Cited

Bergroth, E. 1894. Rhynchota Orientale. Revue d' Entomologie 13: 152–164.

Blöte, H. C. 1936. Catalogue of the Coreidae in the Rijksmuseum van Natuurlijke Historie, Part III. Coreinae, Second part. Zoologische Mededeelingen 19: 23–66.

Brailovsky, H. 1993. A revision of the tribe Colpurini from Australia (Hemiptera-Heteroptera-Coreidae). Memoirs of the Queensland Museum 34(1): 35–60.

Breddin, G. 1900a. Hemiptera gesammelt von Profes-

sor Kukenthal im Malayischen Archipel. Abhandlunger der Senckenbergischen Naturforschenden Gesellschaft 25(1): 139–202.

Breddin, G. 1900b. Materiae ad cognitionem subfamiliae Pachycephalini (Lybantini Olim). Ex Hemipteris-Heteropteris, Fam. Coreidae. Revue d' Entomologie Caen 19: 194–217.

Breddin, G. 1906. Neue beitrage zur kenntnis von *Colpura* Bergr., und verwandter Rhynchoten. Annales de la Societe Entomologique de Belgique 50: 47–58.

Uhler, P. R. 1861. Rectification of the paper upon the Hemiptera of the North Pacific Expedition. Proceedings of the Academy of Natural Sciences of Philadelphia 1861: 286–287.

Walker, F. 1871. Catalogue of the specimens of Hemiptera Heteroptera in the collection of the British Museum. Part IV, London, 211 pp.